

“ These supersede the chart ; but it may still serve as a picture to shew a singular luminous appendage, which, on the evening of the 16th, I observed for the first time to proceed from the head of the comet *towards* the sun almost diametrically opposite to the proper tail. It consisted of a narrow band of faint light of about the same breadth as the head. The edges were well defined and parallel. It could be traced for 3° , and probably extended much farther, as the increasing moonlight was very unfavourable to so faint an object. Its direction and appearance, when first seen on the 16th, is shewn on the chart. Another representation of it is given, on a large scale, as it appeared on the evening of the 25th. The two tails now made an evident angle, and the space was filled with a diffused, irregular light, giving a triangular shape to the comet when seen by the naked eye. The direction of the tails, in reference to the adjacent stars, has been carefully set down on the chart. This evening the same appearance continues, but very faint, the angle at the head of the comet being about 140° . Mr. Milne, in his essay on comets, states, that in the comet of 1824, the same kind of double tail was observed. It would be interesting to know if there is any chance of their being the same. A newspaper correspondent here remarks, that there is a considerable resemblance in the elements (except the perihelion distance) to the comet of 1737 (Delambre's *Astronomy*). The comet of 1557, which is expected to return in 1848, is also not very widely different in its elements.

“ J. J. WATERSTON.”

5. Observations made at the Observatory of Georgetown, Demerara. Communicated by Lord Stanley through the Astronomer Royal.

“ *Demerara Observatory, 18th January, 1845.*

“ *Observations of the Comet.*

“ On the 26th December, 1844, about seven o'clock P.M., discovered a comet about 5° above the south-west horizon. Not having any instruments at hand except a compass, took its bearings, and found it to be about 40° south declination.

“ From this date to the 8th January, 1845, could not obtain an observation, from the density of the atmosphere.

“ On the 8th January, found, by observation, its position to be in the east wing of *Grus* or *Crane*. About 12° in an easterly direction from δ *Gruis*, and 4° distance from γ *Gruis*.

“ On the 12th January, the tail of the comet extended a little to the west of the star γ *Phenicis*, and was about 7° in length ; the nucleus was nearly in a line with the stars ϵ and γ in the same constellation, and, although not well defined, appeared equal in size to a star of the fourth magnitude.

“ On the 15th January, found, by observation, that it was going in nearly a direct line to γ *Phenicis*, and was distant about 5° from ϵ in the same constellation, bearing north.

“ On the 16th and 17th instant, its appearance was so very indistinct, that no accurate observations could be obtained ; and as

it has been apparently fast receding from the sun since the 12th instant, no doubt it will soon disappear altogether.

“ From observing the distances of the four fixed stars, viz. *Sirius*, *Aldebaran*, *Achernar*, and *Fomalhaut*, from the nucleus, found its right ascension and declination to be as follows, at about 7^h 30^m mean-time, each evening :—

Day.	Right Ascension.	South Declination.
1845. Jan. 8	h m 22 10	° ′ 44 00
10	22 32	44 05
12	23 05	44 15
15	23 30	44 30

“ JAMES DONALD,
“ W. WILSON.”

V. Observations of Distances of the Great Comet of 1843, from known Stars, made at Port Essington, by Sir Everard Home, and Mr. Brown, Master of her Majesty's Ship Alligator. Communicated by Captain Beaufort, R.N.

VI. Description of a Method of using Scales constructed for the Prediction of Occultations. By J. J. Waterston, Esq. Communicated by Captain Beaufort, R.N.

VII. Observations of the Second Comet of Mauvais, accompanied by a Chart of its Progress among the Stars. By J. J. Waterston, Esq. Communicated by Captain Beaufort, R.N.

VIII. Observations and Elements of D'arrest's Comet. By C. Rumker, Esq. Communicated by Dr. Lee.

The following table contains the right ascensions and declinations of the comet resulting from the observations :—

Day.	Mean Time at Hamburg.	Apparent Right Ascension of Comet.	Apparent North De- clination of Comet.	No. of Obser.
1845. Jan. 3	h m s 7 45 3	° ′ ″ 292 34 1'5	° ′ ″ 38 35 17'2	15
10	7 45 54	290 5 18'5	41 30 37'7	14
11	8 16 5	289 38 38'3	41 57 51'1	2
„	16 11 23	289 30 31'5	42 6 45'5	12
12	7 32 5	289 12 53'8	42 24 14'9	10

From an observation made at Berlin, on December 28, and observations at Hamburg, on January 3 and 10, Mr. Rumker has computed the following elements :—